

X-RAY DEPARTMENT

4855 ELECTRIC AVENUE, MILWAUKEE 1, WISCONSIN. TELEPHONE EVergreen 3-321

November 14, 1961

Adrian Kantrowitz, M.D. Maimonides Hospital 4802 Tenth Avenue Brooklyn, New York

## Dear Sir:

It was a pleasure to meet with you again and review the progress that you have made in your research program. From our discussion, it is my understanding that you are interested in getting hardware from the General Electric Company for your projects in the following order of urgency:

- 1. Phrenic nerve stimulator. (Replace iron lung.)
- 2. Booster heart.
- 3. Rechargeable pacemaker.
- 4. Sphincter muscle control.
- 5. Internal energy source (biochemical fuel cell).
- 6. Paraplegic programming.

Of these, you indicated that your work in the first two is, or will be, held up shortly as a result of a lack of engineering effort by the Electronics Laboratory. You indicated a desire for six phrenic nerve stimulators suitable for implant in dogs within the next three months, and three units suitable for human implant within four to six months. In the booster heart you indicated a need for six units for implanting in dogs within the next year. (This would require approximately twelve development type units in order to arrive at the design for six prototypes.)

It appeared that a rough budgetary estimate of the cost of the units required for the phrenic stimulator and booster heart experiments would be approximately \$50,000. Jerry Suran indicated to you that he was no longer able to perform the engineering work and provide the units for free as he had done in the past. This decision was reviewed at vice-presidential level. As I indicated, the X-Ray Department will be unable to provide funds for this research and development work at the Electronics Laboratory. We are, however, willing to administer a contract for the Electronics Laboratory and you at no additional general and administrative cost, and at no profit.



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Several possible alternatives appear desirable in order to permit you to obtain funding to be able to move at the accelerated rate that your experimentation appears to justify. These are:

- 1. Increased funds for your present NIH grant.
- 2. A supplementary NIH grant for you to cover hardware for implantation since this was not included on your previous grant.
- 3. Separate NIH grants to the General Electric Company to cover development work of this hardware.
- 4. Support from the Heart or Polio Foundations.
- 5. Support from philanthropic individuals or companies.

As I indicated, I believe the first approach should be to NIH and that Jerry Suran and I are willing to meet with you in Washington to explore the possibilities with the NIH people. I will check with Jerry and try to pick a date during the last week of November that would be mutually acceptable to the three of us.

Sincerely,

R. W. Hodgers, Jr. Manager - Engineering

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